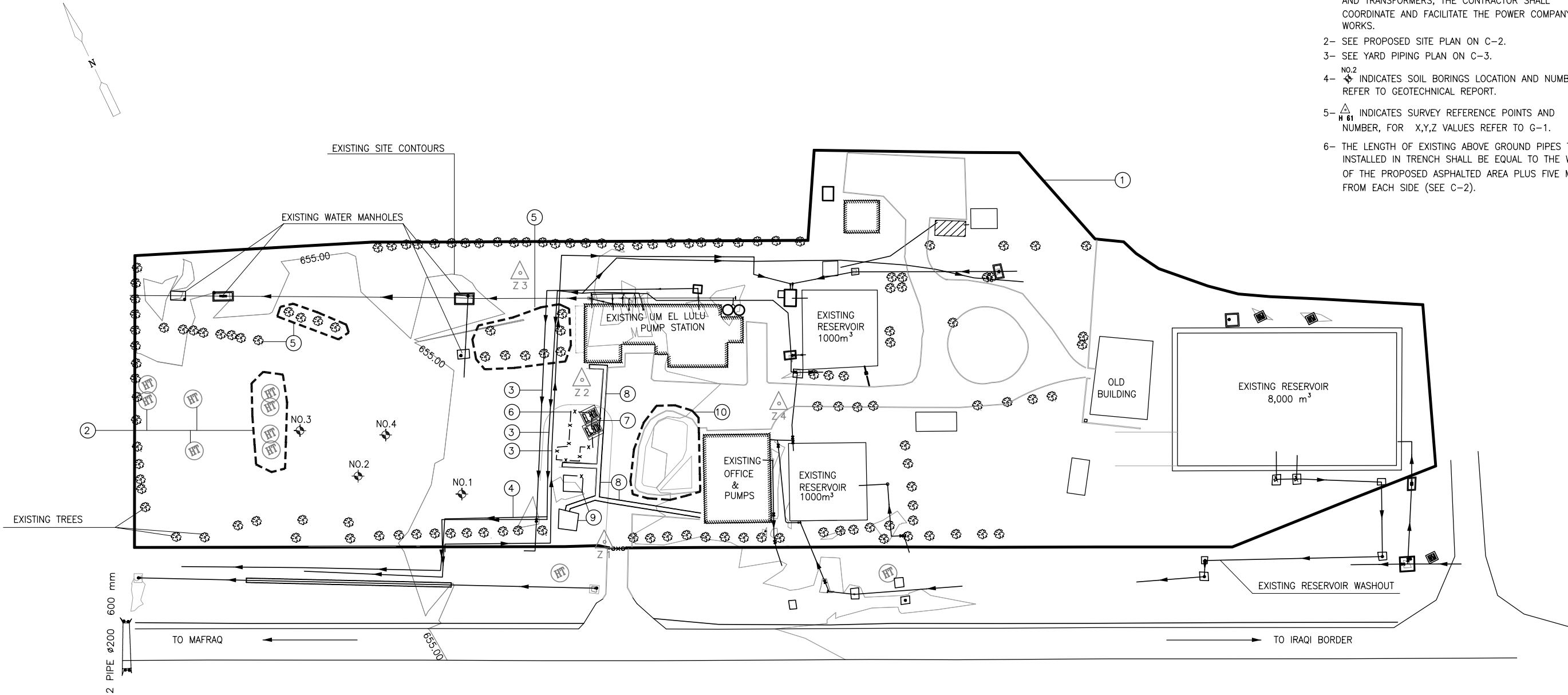


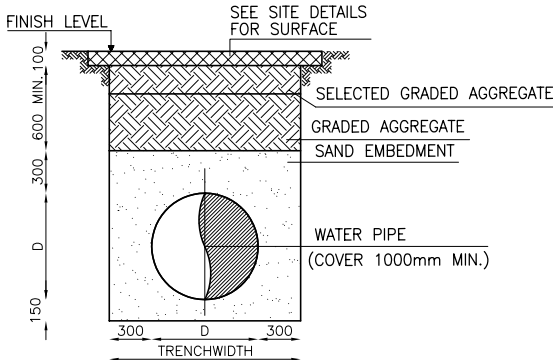
NOTES:

- 1- THE POWER COMPANY WILL BE RESPONSIBLE FOR REMOVING THE EXISTING ELECTRIC POLES, CABINETS AND TRANSFORMERS, THE CONTRACTOR SHALL COORDINATE AND FACILITATE THE POWER COMPANY WORKS.
- 2- SEE PROPOSED SITE PLAN ON C-2.
- 3- SEE YARD PIPING PLAN ON C-3.
- 4- ^{No.2} INDICATES SOIL BORINGS LOCATION AND NUMBER REFER TO GEOTECHNICAL REPORT.
- 5- ^{H 61} INDICATES SURVEY REFERENCE POINTS AND NUMBER, FOR X,Y,Z VALUES REFER TO G-1.
- 6- THE LENGTH OF EXISTING ABOVE GROUND PIPES TO BE INSTALLED IN TRENCH SHALL BE EQUAL TO THE WIDTH OF THE PROPOSED ASPHALTED AREA PLUS FIVE METERS FROM EACH SIDE (SEE C-2).



1	EXISTING ZATARY PUMP STATION SITE BOUNDARY (FENCE WALL)
2	EXISTING NOT IN USE ELECTRICAL POLES, CABINETS AND EQUIPMENT TO BE REMOVED SEE NOTE (1)
3	EXISTING ABOVE GROUND WATER PIPELINES TO BE INSTALLED IN TRENCH SEE DETAIL (1) AND NOTE (6)
4	EXISTING GALVANIZED PIPES TO BE RELOCATED AT A SUFFICIENT SAFE DISTANCE FROM THE NEW CONTROL ROOM
5	EXISTING TREES TO BE REMOVED
6	EXISTING TRANSFORMERS FENCE TO BE REMOVED
7	EXISTING ELECTRICAL CABINETS TO BE REMOVED AFTER OPERATING THE NEW PUMP STATION SEE NOTE (1)
8	EXISTING ELECTRICAL TRENCHES (EXISTING CABLES) TO BE REMOVED BY THE CONTRACTOR AFTER OPERATING THE NEW PUMP STATION
9	EXISTING TRANSFORMERS AND POLES TO BE REMOVED AFTER OPERATING THE NEW PUMP STATION SEE NOTE (1)
10	EXISTING OFFICE FRONT GREEN AREA AND WALKWAYS TO BE REMOVED

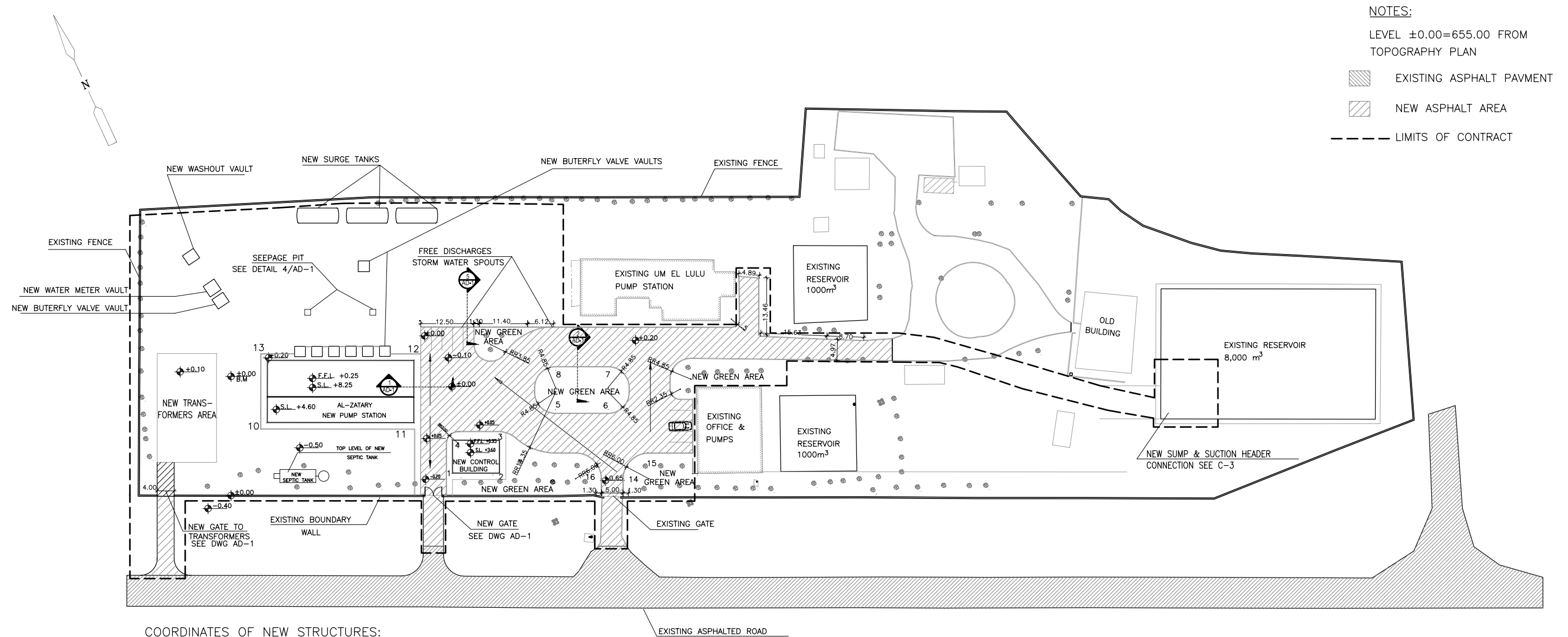
10 5 0 20 METER



DETAIL 1
NTS
(SEE NOTE 6)

REDUCED SIZE
DRAWINGS

					DESIGNED:	CHECKED:	SCALE:	   CDM International Inc.	NORTHERN GOVERNORATES WATER TRANSMISSION Eastern Primary Transmission System	PROJECT NO. : 3029-42324
					A.H.	M.M.	1:500		EXISTING SITE PLAN / DEMOLITION	DRAWING NO. : C-1
					DRAWN:	APPROVED:	DATE:			
REV.	DATE	DRAWN	CHKD	REMARKS	N.K.	D.D.	NOV. 2005			



- NOTES:
- LEVEL $\pm 0.00 = 655.00$ FROM TOPOGRAPHY PLAN
- EXISTING ASPHALT PAVMENT
 - NEW ASPHALT AREA
 - LIMITS OF CONTRACT

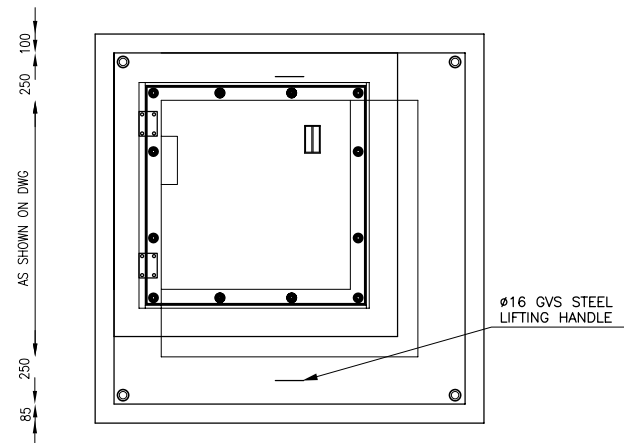
COORDINATES OF NEW STRUCTURES:

BUILDING NAME	POINT No	EASTING	NORTHING
CONTROL BUILDING	1	273426.635	192098.730
	2	273436.798	192093.789
	3	273440.295	192100.984
	4	273430.133	192105.924
ISLAND	5	273455.206	192101.693
	6	273466.396	192096.253
	7	273470.397	192104.483
	8	273459.207	192109.923
ROADS	9	273432.380	192106.888
PUMP STATION	10	273392.536	192128.538
	11	273423.833	192113.323
	12	273429.560	192126.723
	13	273339.263	192125.103
ROADS	14	273462.494	192079.970
	15	273470.513	192082.743
	16	273457.723	192082.290

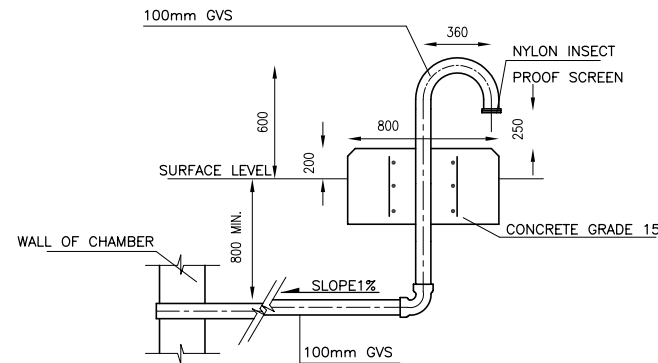
PROPOSED SITE PLAN

REDUCED SIZE
DRAWINGS



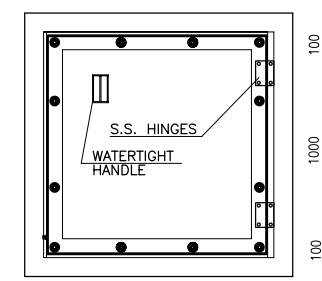


**HATCH DOOR (TYPICAL)-PLAN
NTS**

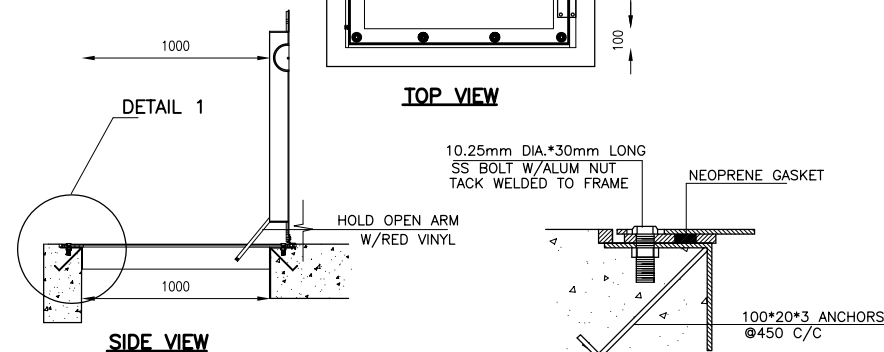


**VAULT VENT PIPE DETAILS
NTS**

100 1000 100



TOP VIEW

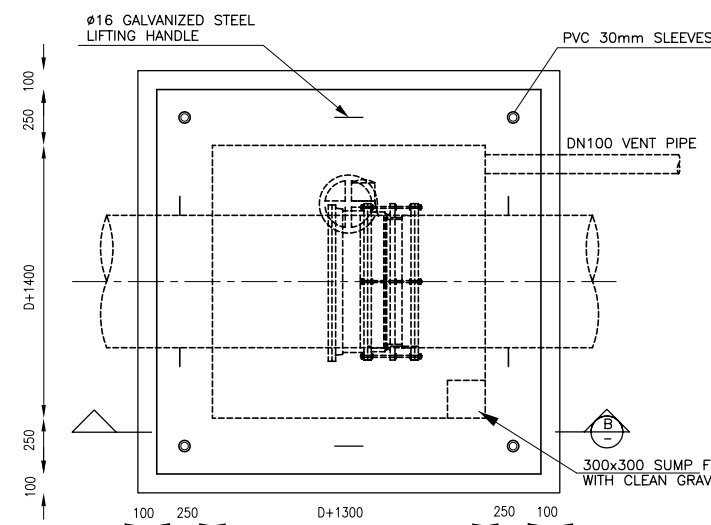


SIDE VIEW

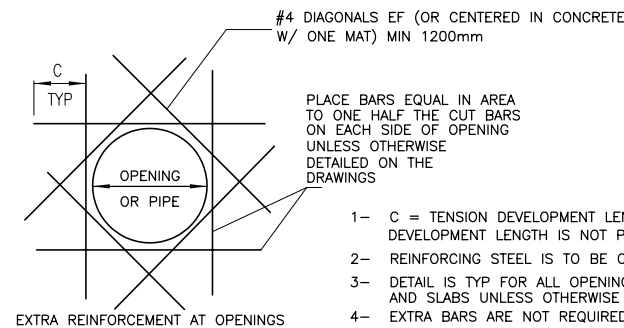
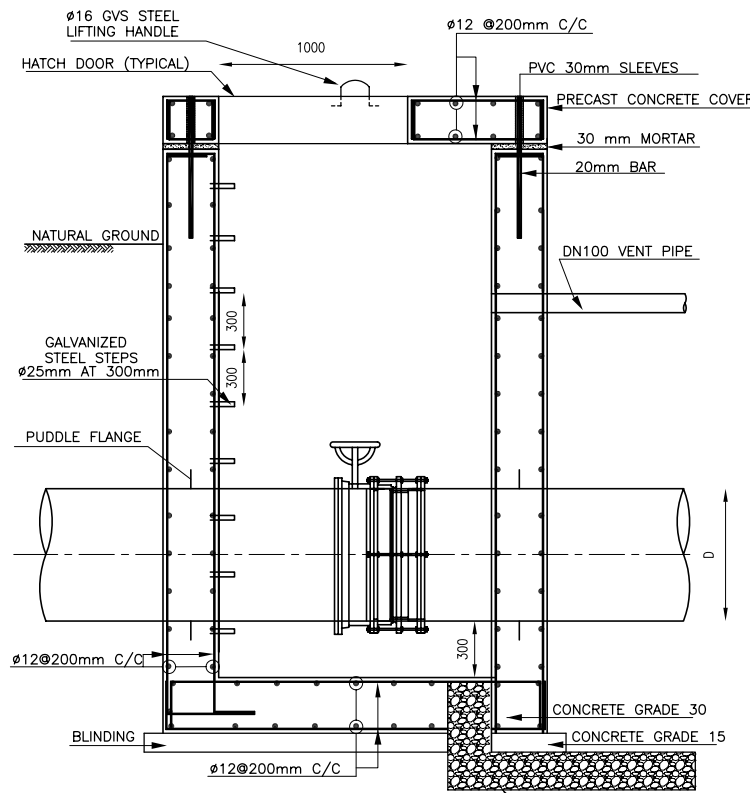
**TYPICAL HATCH DOOR FOR VAULTS
NTS**

WATER METER SCHEDULE

LOCATION	PIPE DIA. (mm)	WATER METER SIZE (mm)
ZATARY PS	1000	1000
HOFA RESERVOIR	700	700



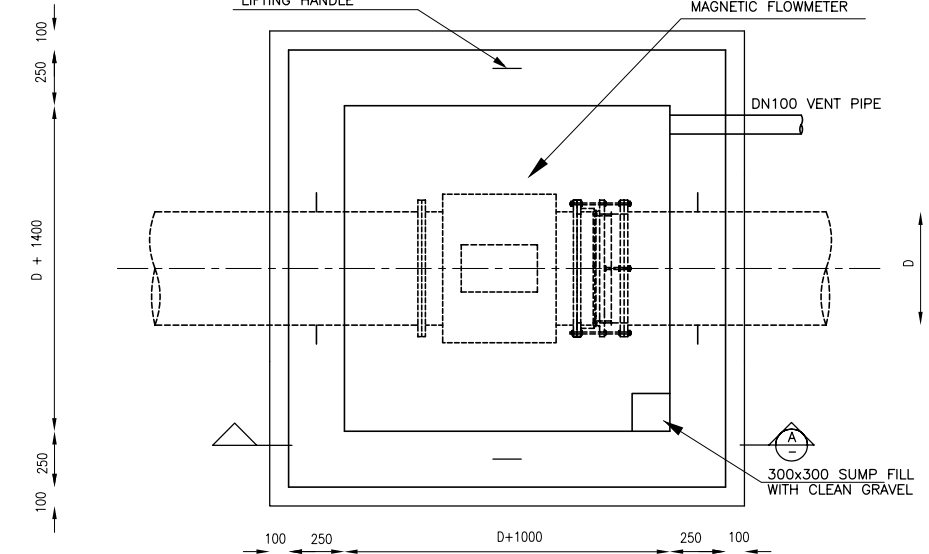
**BUTTERFLY VALVE VAULT IN NATURAL GROUND-PLAN
VALVE SIZE = 600-1000mm DIA.**



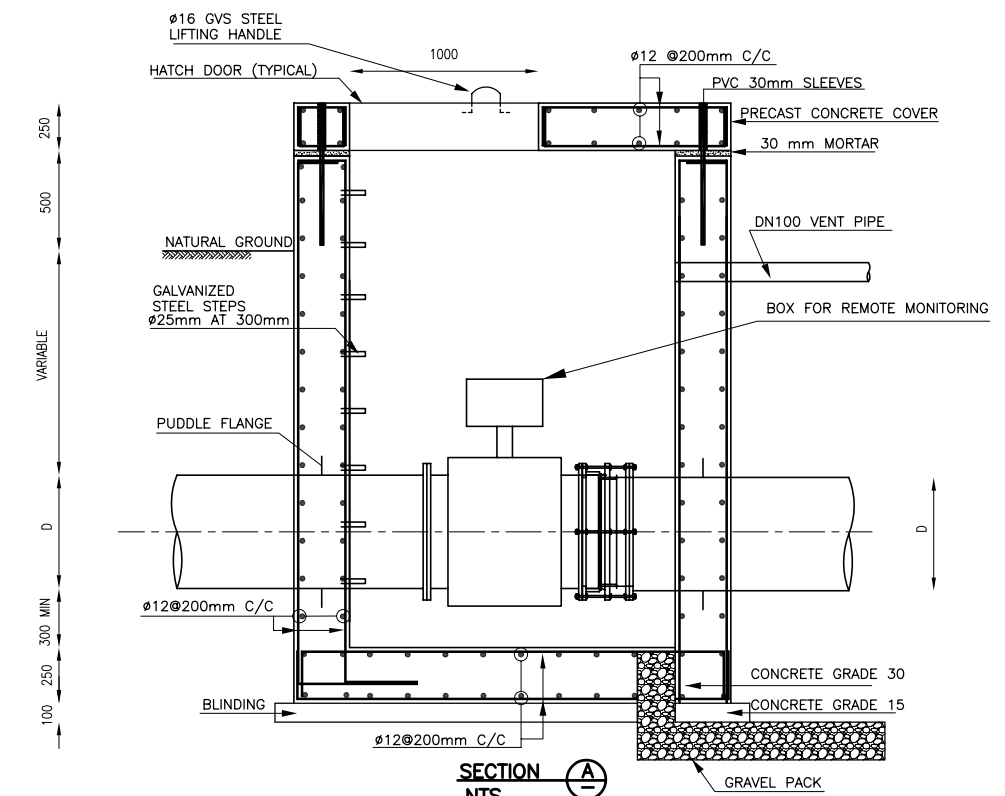
**DETAIL 2
NTS**

- 1- C = TENSION DEVELOPMENT LENGTH: PROVIDE STD HOOK IF FULL DEVELOPMENT LENGTH IS NOT POSSIBLE
- 2- REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS
- 3- DETAIL IS TYP FOR ALL OPENINGS GREATER THAN 250mm IN CONCRETE WALLS AND SLABS UNLESS OTHERWISE NOTED
- 4- EXTRA BARS ARE NOT REQUIRED AT AN OPENING EDGE PARALLEL TO AND WITHIN 150mm OF A WALL OR BEAM

- NOTE:**
- 1- Ø12 @200mm C/C MEANS Ø12mm AT 200mm FROM CENTER TO CENTER.
 - 2- ALL PIPE PENETRATIONS THROUGH MANHOLE WALLS SHOULD HAVE PUDDLE FLANGES AND ADDITIONAL REINFORCEMENT ON BOTH SIDES OF THE PUDDLE FLANGES, ADDITIONAL STEEL SHOULD BE AS SHOWN IN DETAIL 2.



**MAGNETIC FLOWMETER VAULT PLAN AND SECTION
NTS**



REDUCED SIZE
DRAWINGS

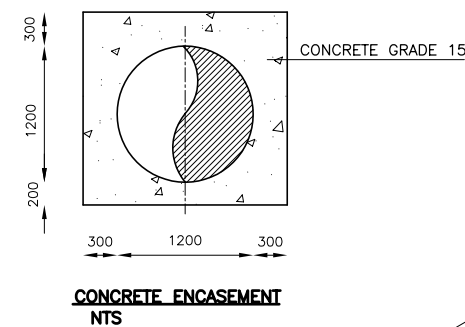
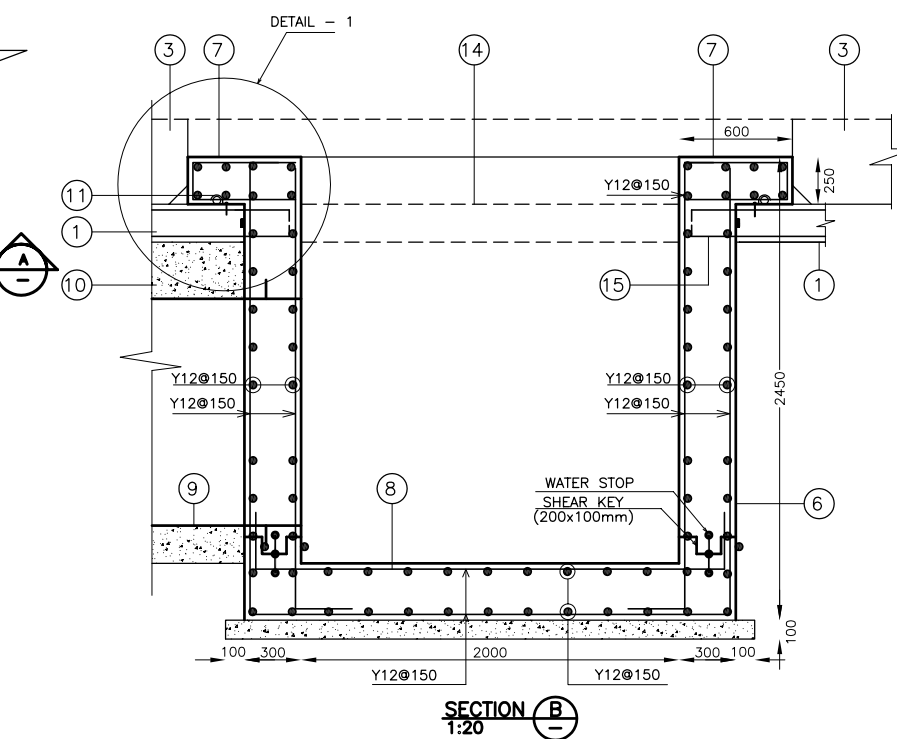
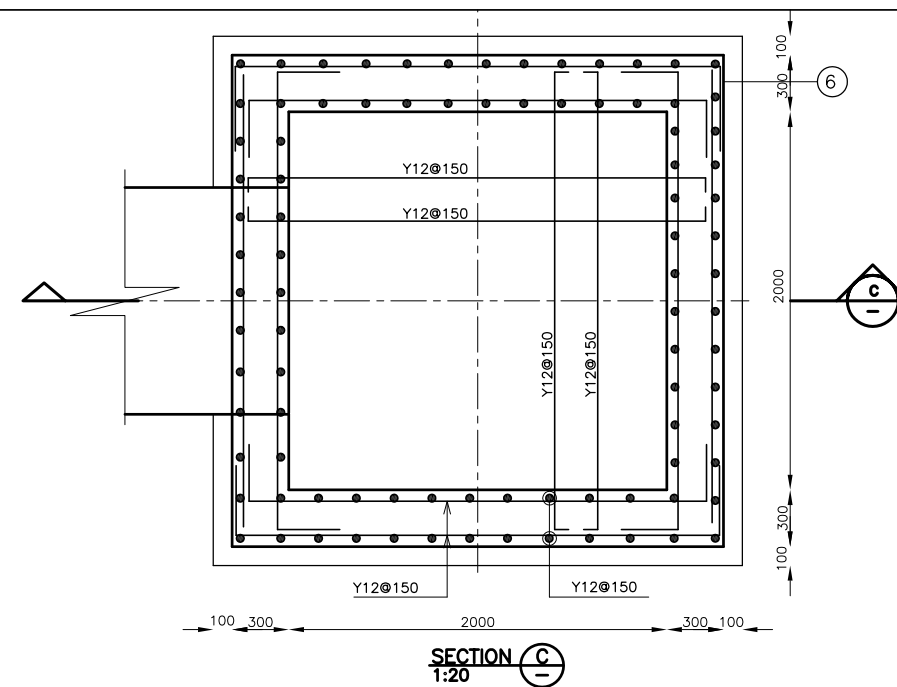
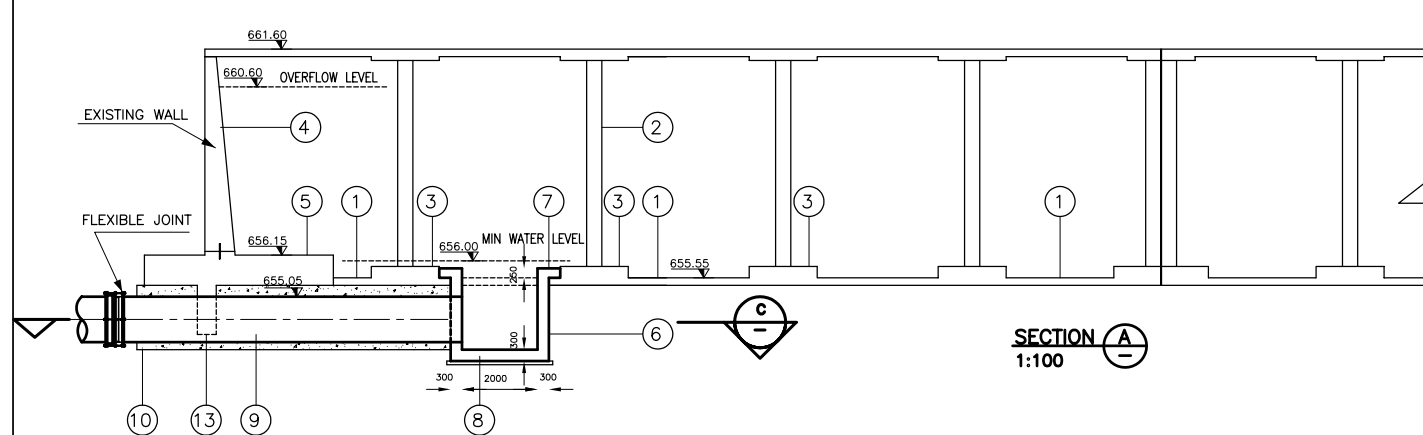
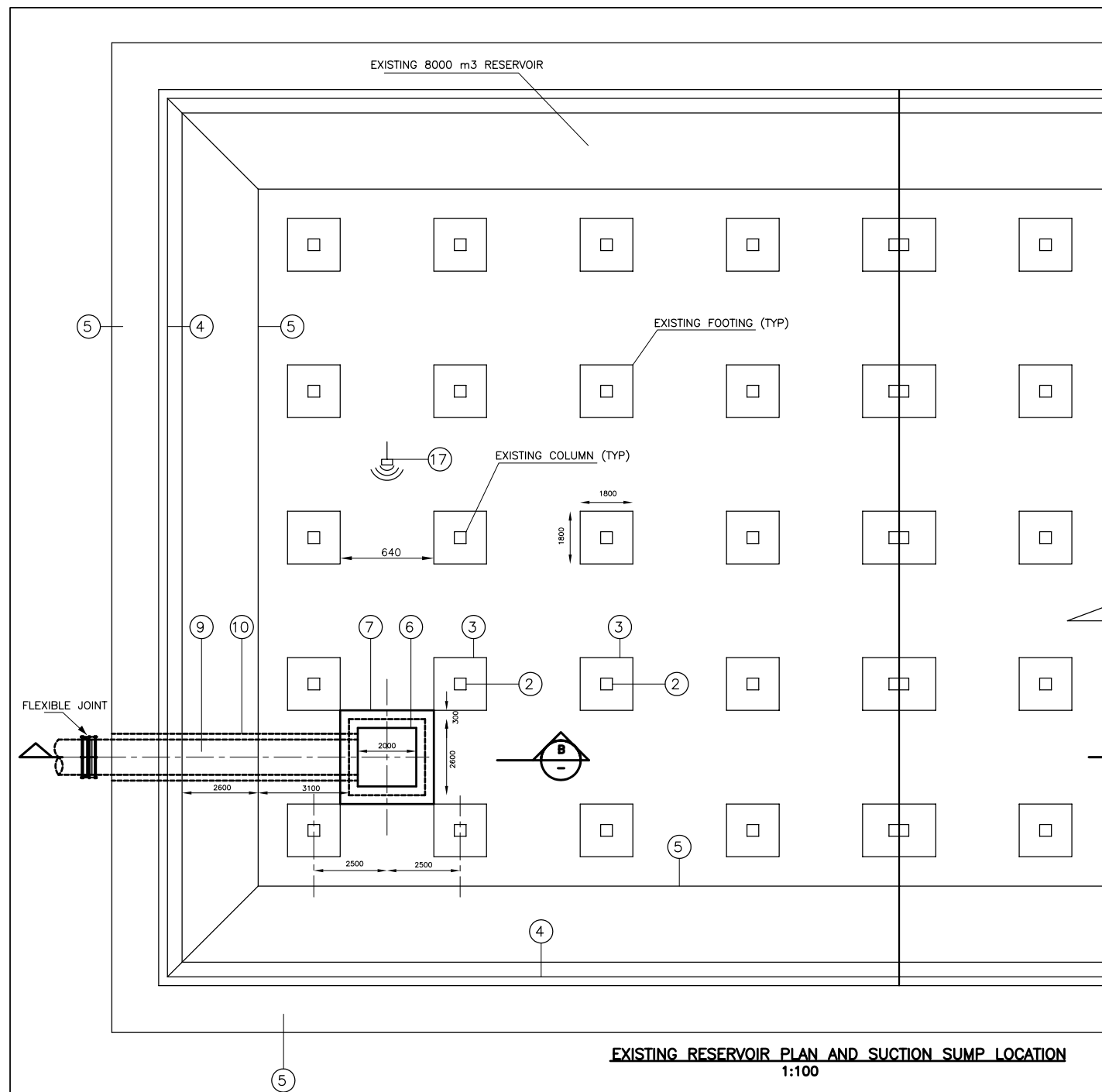
DESIGNED: L.H.
CHECKED: M.M.
SCALE: NTS
DRAWN: N.K.
APPROVED: D.D.
DATE: NOV. 2005



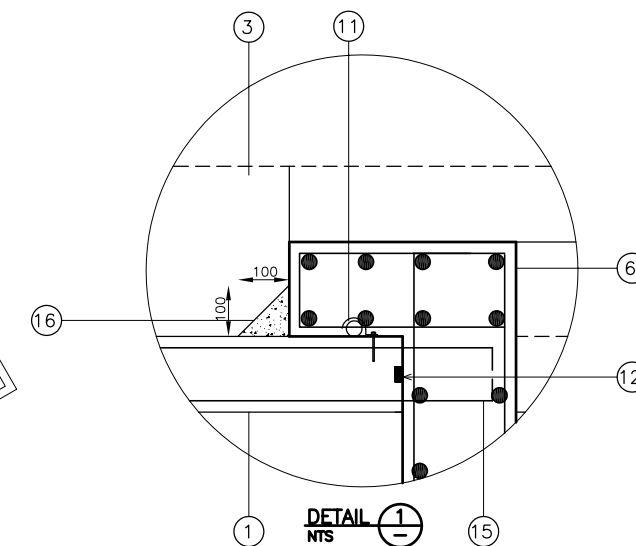
CDM
CDM International Inc.

NORTHERN GOVERNORATES WATER TRANSMISSION
Eastern Primary Transmission System
**WATER METER & BUTTERFLY VALVE
VAULT DETAILS**

PROJECT NO.: 3029-42324
DRAWING NO.: CD-1

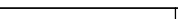
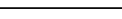
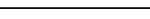


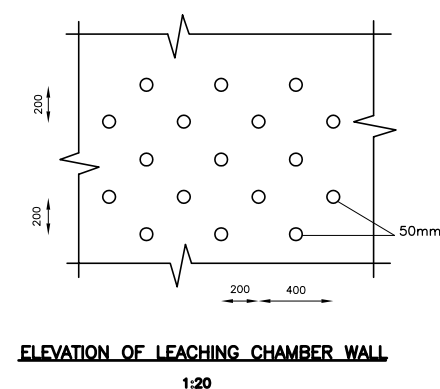
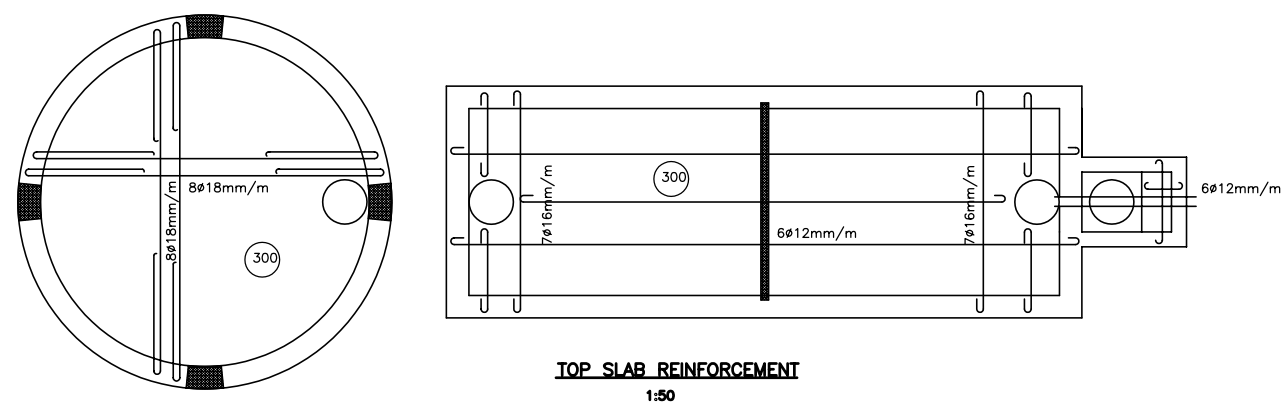
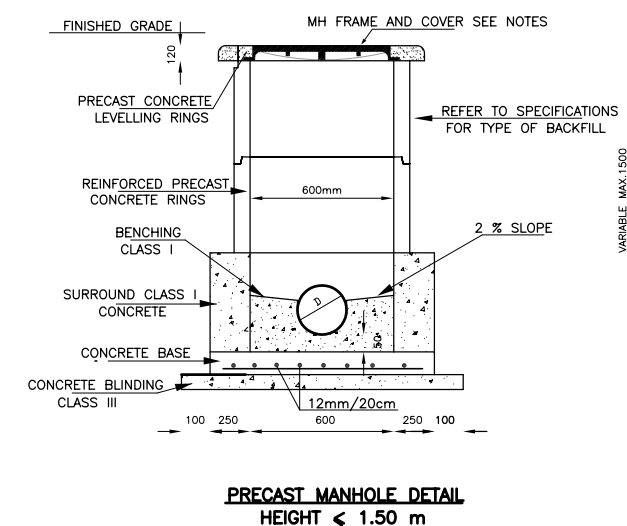
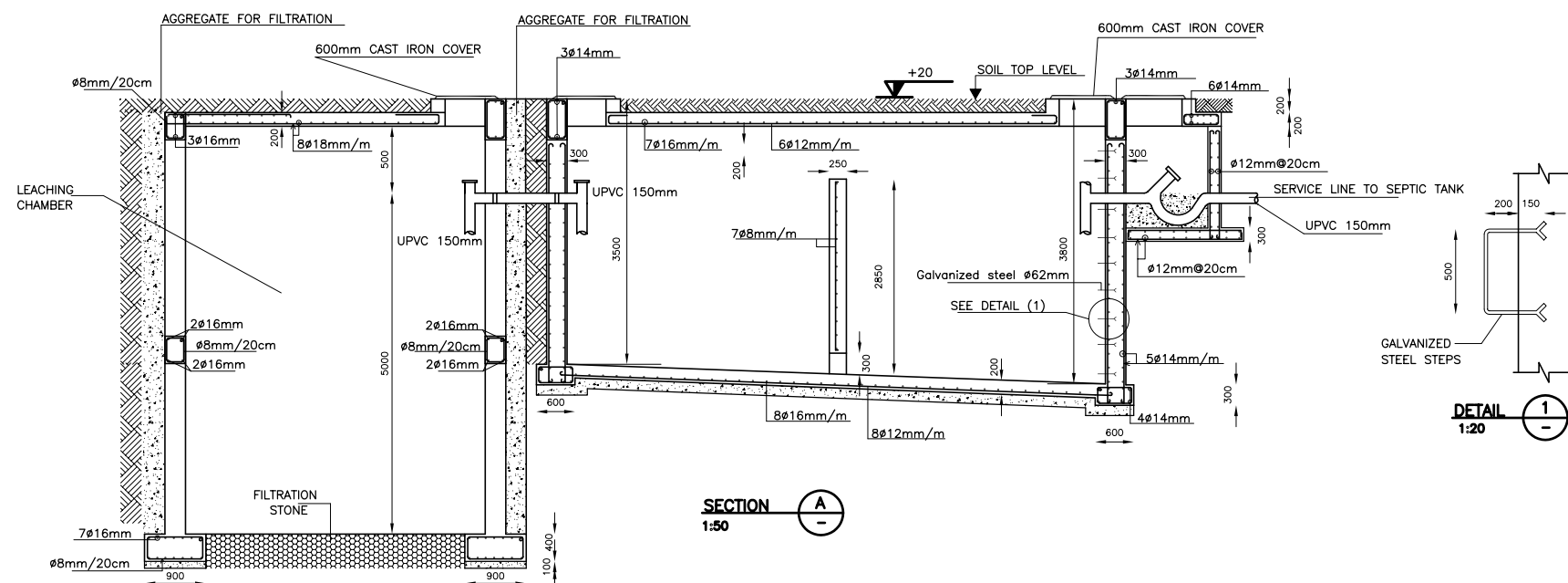
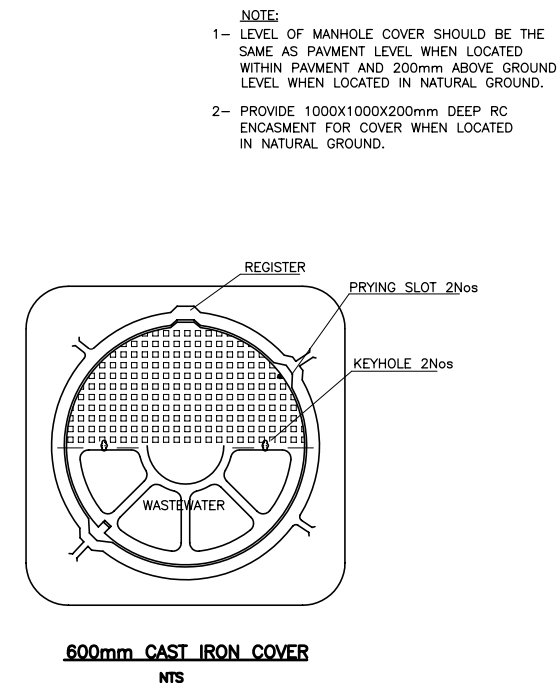
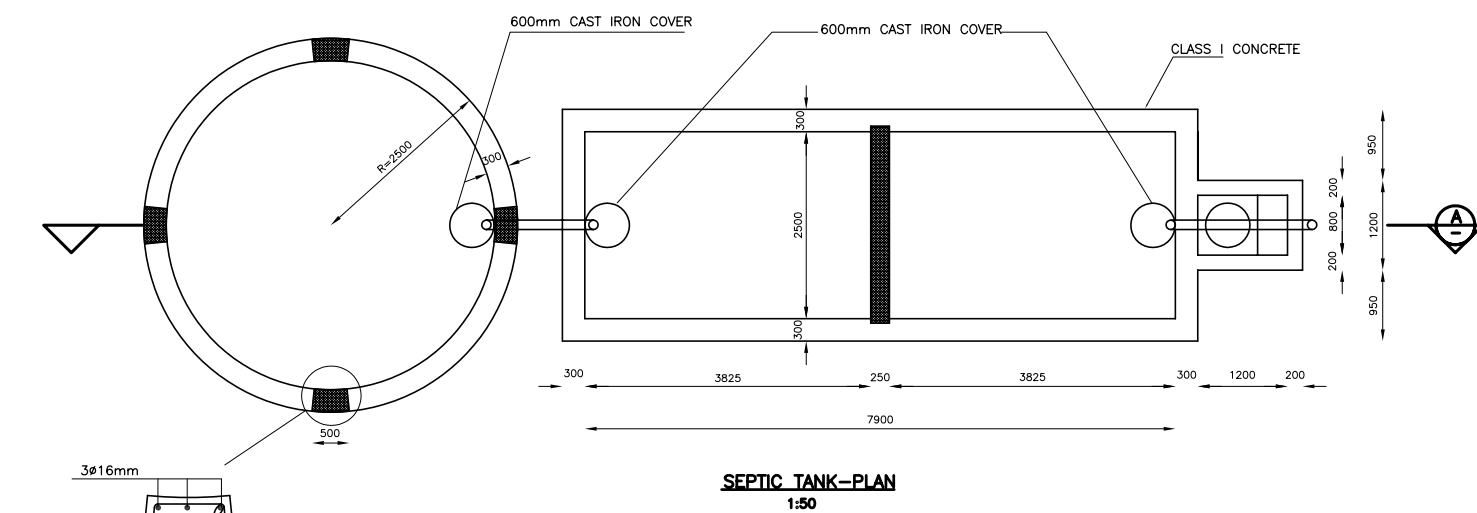
REDUCED SIZE
DRAWINGS






- Notes:**
1. The new sump shall be constructed in the existing reservoir in the location and to the dimensions shown on this plan.
 2. Existing reservoir slab shall be cut for sump construction to the dimension shown, existing reinforcement of removed existing slab shall be arranged as shown in section B.
 3. The contractor shall excavate a tunnel under the existing reservoir to install the suction header as shown on section A. The contractor shall submit tunnel and sump pit walls support details to the Engineer prior to the tunnel excavation.
 4. The suction header 1200 mm steel shall be encased in concrete encasement, sufficient number of holes shall be made in the reservoir slab and wall footing for casting the suction header encasement and to guarantee full encasement. All holes made in the bottom slabs shall be provided with hydrophilic rubber waterstop in the middle of the old / new concrete contact surface for the full circumference length of the openings
 5. The reinjectable waterstop shall be FUKO hose as manufactured by Greenstreak or approved equal.
 6. SBR additive /mix to lean concrete at ratio of 1/3 water content.
 7. Core for EL101 ultrasonic level sensor should be to manufactures, recommended diameter.

1	Existing Reservoir Slab
2	Existing Reservoir Column
3	Existing Reservoir Column Footing
4	Existing Reservoir Wall
5	Existing Reservoir Wall Footing
6	New Sump Wall
7	New Sump Surface Slab
8	New Sump Bottom Slab
9	New Suction Header 1200 mm Steel
10	Concrete Encasement
11	Reinjectable Water Stop
12	Solid Hydrophilic Rubber, Water Stop Fixed Mechanically To Old Concrete
13	Existing Footing Cut Off Wall
14	Existing Slab To Be Removed
15	Removed Slab Reinforcement
16	Non Shrink Lean Concrete Fillet With SBR Additive
17	LE101 Ultrasonic Level Sensor

					DESIGNED: M.M. A.O.	CHECKED: M.A.	SCALE: AS SHOWN	  	CDM CDM International Inc.	NORTHERN GOVERNORATES WATER TRANSMISSION Eastern Primary Transmission System	PROJECT NO. : 3029-42324
					DRAWN: N.K.	APPROVED: D.D.	DATE: NOV. 2005			SUCTION SUMP DETAILS	DRAWING NO. : CD-2
REV.	DATE	DRAWN	CHKD	REMARKS							



					DESIGNED: M.M. A.H.	CHECKED: M.A.	SCALE: AS SHOWN	   	NORTHERN GOVERNORATES WATER TRANSMISSION Eastern Primary Transmission System	PROJECT NO. : 3029-42324	
					DRAWN: N.K.	APPROVED:	DATE: NOV. 2005		CDM International Inc.	SEPTIC TANK DETAILS	DRAWING NO. : CD-3
REV.	DATE	DRAWN	CHKD	REMARKS							
















Design, detailing and workmanship shall be according to BS 8110-1997.

All Dimensions are in millimeters, or otherwise stated.

- 1-Structural drawings shall be read in conjunction with Architectural, Mechanical and Electrical drawings.
- 2-Drawings are not necessarily to scale.

B = Bottom Bars
BOF = Bottom Level of Footing
BU = Bent Up Bars
EF = Each Face
EW = Each Way
H = Horizontal Bars
L = L shaped Top Bars
M = Lacer bars at side faces
R = Mild Steel Bars
S = Stirrups
SOG = Slab on Grade
T = Top Bars
TGB = Top Level of Grade Beams
TOF = Top Level of Footing
TSS = Top Level of Structural Slab
U = U shaped Bars
V = Vertical Bars
Y = High Yield Bars



- | | |
|---|--|
|  | = Structural Wall Below Slab Level |
|  | = Structural Wall Above Slab Level
(No Structural Wall Below) |
|  | = Inverted Beam or Parapet Above
Slab Level |
|  | = Drop Beam |
|  | = Column Below Slab Level |
|  | = Column above Slab Level |
|  | = Hardcore |
|  | = Stone |
|  | = Polystyrene |
|  | = Block wall |
|  | = Plain Concrete Wall Below
Slab level |
|  | = Plain Concrete |
|  | = Waterproofing |
|  | = Thickness of Slab |
|  | = Level |
| C1 | = Column Mark |
| 15 S.O.G. | = Thickness Of Slab On Grade |

The following types of reinforced concrete shall be employed:

Reinforced concrete characteristic strength

Reinforced concrete characteristic strength
at age of 28 days for all reinforced concrete members
(include slabs, beams, columns, walls, foundations, slab
on grade and retaining walls) shall be 30 MPa.

Characteristic strength as defined by a standard 150 mm cube after 28 days shall be : 30 MPa.

Cement content shall be determined by design mix to be approved by the consultant and should not be less than 350 kilograms/m³

Maximum water-cement ratio shall be: 0.50

For water tight structures:
Maximum water-cement ratio shall be: 0.44

Plain concrete shall be employed for blinding under foundations. The characteristic strength at age of 28 days shall be 15 MPa.

Cement content should not be less than 250 kilograms/m³
Maximum water–cement ratio shall be: 0.60

Ordinary Portland Cement (OPC)

Clear concrete cover to reinforcement shall be:

- 75 mm for foundations
- 30 mm for stairs, beams
- 40 mm for columns

Maximum aggregate size shall be 20 mm.

- 1- All reinforcing bars of a deformed high strength steel bars of characteristic strength equal to: $F_y=420$ MPa.
- 2- Bars and stirrups of 8mm diameter only shall be of smooth mild steel of characteristic strength equal to: $F_y=235$ MPa.
- 3- Reinforcement shall comply with BS4449
- 4- Reinforcement shall be placed as shown on the drawings and in the lengths specified.
- 5- Where bar length is not specified, longest practicable bar length shall be employed with staggered lap splices. Lap length shall be 60 times bar diameter.
- 6- Bar crank shall not exceed 1:12.

BAR DIAMETER (mm)	BARS IN TENSION	BARS IN COMPRESSION
10	600	600
12	750	750
14	850	850
16	1000	1000
18	1100	1100
20	1200	1200
22	1350	1350
25	1500	1500
32	2000	2000

The Foundations are designed for bearing capacity equal to 180 KPa
It is the responsibility of the Contractor to ensure that this bearing capacity is achieved at site with respect to the location of foundation.

Foundation depth should be minimum of 2.5m below the finished level of the surrounding ground.

Foundation shall be layed on engineering fill material.

All underground concrete shall be coated as specified.
A polyethylene vapor / moisture barrier sheet shall be provided at the bottom of any horizontal concrete surface in touch with soil

Back filling should be compacted on layers not more than 20cm thick to not less than 95% compaction ratio of the max. dry density of the Modified Proctor test.

Back filling should extend 1.0m beyond the perimeter of the building.

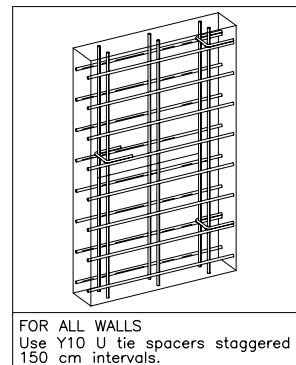
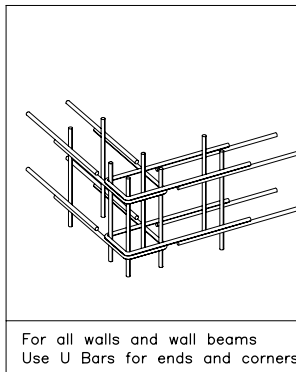
Placement of bars shall be as follows, unless indicated otherwise:

- ① Top bars in spans shall be placed to lap equal lengths with support top bars at both left and right.
- ② Bottom bars in interior spans shall be placed to extend equal lengths beyond support centerlines at both left and right and not less than 15cm.
- ③ Bottom bars in exterior spans shall be placed such that they extend a length equal to 12 times bar size beyond the centerline of the exterior support. This length may include a 90 degree bend if sufficient room does not exist.
- ④ L bars as top reinforcement at exterior supports shall extend 30 times the bar size beyond the bend.
- ⑤ Equal spans top bars at interior supports shall be placed centrally on the support axis lines unless otherwise is mentioned.
- ⑥ Spans are approximately equal, with longer of two adjacent spans not greater than the shorter by more than 20 percent. Or otherwise must be justified by calculations


SCHEDULE OF LINTELS REINFORCEMENT										
CLEAR SPAN	LINTEL WIDTH (b)	b=100mm.		b=150mm.		b=200mm		b=300mm		DEPTH=d
		TOP REINF.	BOTTOM REINF.	TOP REINF.	BOTTOM REINF.	TOP REINF.	BOTTOM REINF.	TOP REINF.	BOTTOM REINF.	
< 2000		1Y10	1Y12	2Y10	2Y12	2Y10	2Y12	3Y10	3Y12	200
2000-3000		1Y10	1Y16	2Y10	2Y14	2Y10	2Y16	3Y10	3Y16	250
3000-3500		1Y10	1Y20	2Y10	2Y16	2Y10	2Y20	3Y10	3Y20	300

Construction joints should be done in locations specified on the drawings or where the contractor decide to stop construction. Contractor should submit detailed shopdrawings, (according to ACI318 chapter 6) showing locations and details of construction joints for engineer approval before construction.

- making rough surface and exposing the aggregate.
- adding water stop as per structural details




Minimum Radius of Bend for L Bars and U Bars shall be as follows. For other bars, minimum radius of bend shall equal to 2 times bar size for Mild Steel and 3 times bar size for High-yield Steel.

 If sufficient room does not exist for L Bars to extend 25 times the bars size beyond the bend, a 180 degree hook shall be made.

U Bars shall have legs of equal length, unless indicated otherwise.

BAR DIAMETER (mm)	MINIMUM r (mm)
8	55
10	70
12	85
14	100
16	120
18	140
20	160
22	180
25	215
32	300

REDUCED SIZE
DRAWINGS

					DESIGNED:	CHECKED:	SCALE:	  	 CDM International Inc.	NORTHERN GOVERNORATES WATER TRANSMISSION Eastern Primary Transmission System	PROJECT NO. : 3029-42324
					S.N.	A.O.	NTS				
					DRAWN:	APPROVED:	DATE:				
REV.	DATE	DRAWN	CHKD	REMARKS	S.N.	M.A.	NOV. 2005			GENERAL STRUCTURAL NOTES	DRAWING NO. : GS-1